Claims

1. A nucleic acid coding for a factor involved in a biological process, whereby the process is a PI 3-kinase pathway regulated process, preferably a process selected from the group comprising glucose metabolism, amino acid and glucose deprivation processes, diabetes, wound healing, stress response, apoptosis, metastasis, tumorigenesis, cell migration, cell motility in extracellular matrix and cell growth in extracellular matrix, and the factor is a polypeptide comprising an amino acid sequence according to SEQ ID. NO. 1 or a polypeptide having a sequence according to databank entries gi 9506687 or NP_061931, preferably NP_061931.1.

2. A nucleic acid coding for a factor involved in a biological process, whereby the process is a PI 3-kinase pathway regulated process, preferably a process selected from the group comprising glucose metabolism, amino acid and glucose deprivation processes, diabetes, wound healing, stress response, apoptosis, metastasis, tumorigenesis, cell migration, cell motility in extracellular matrix and cell growth in extracellular matrix, whereby the nucleic acid comprises a nucleic acid sequences according to SEQ ID NO. 2, SEQ ID NO. 3 or a nucleic acid sequence according to databank entries gi 9506686 or NM_019058, preferably NM_019058.1.

3. A nucleic acid coding for a factor involved in a biological process, whereby the process is a PI 3-kinase pathway regulated process, preferably a process selected from the group comprising glucose metabolism, amino acid and glucose deprivation processes, diabetes, wound healing, stress response, apoptosis, metastasis, tumorigenesis, cell migration, cell motility in extracellular matrix and cell growth in extracellular matrix, whereby the nucleic acid would hybridise, but for the degeneracy of the genetic code, to a nucleic acid which is essentially complementary to the nucleic acid according to claim 2 or part thereof.

4. A nucleic acid coding for a factor involved in a biological process, whereby the process is a PI 3-kinase pathway regulated process, preferably a process selected from the group comprising glucose metabolism, amino acid and glucose deprivation processes, diabetes, wound healing, stress response, apoptosis, metastasis, tumorigenesis, cell migration, cell motility in extracellular matrix and cell growth in extracellular matrix, whereby the

nucleic acid hybridises under stringent conditions to a nucleic acid which is essentially complementary to the nucleic acid according to claim 2 or part thereof.

5. A vector, preferably an expression vector, comprising the nucleic acid according to any of claims 1 to 4.

6. A cell, preferably a mammalian cell, comprising a vector according to claim 5.

7. A factor involved in a biological process, whereby the process is a PI 3-kinase pathway regulated process, preferably a process selected from the group comprising glucose metabolism, amino acid and glucose deprivation processes, diabetes, wound healing, stress response, apoptosis, metastasis, tumorigenesis, cell migration, cell motility in extracellular matrix and cell growth in extracellular matrix, whereby the factor is a polypeptide comprising an amino acid sequence according to SEQ ID NO. 1 or a polypeptide having a sequence according to databank entries gi 9506687 or NP_061931, preferably NP_061931.1.

8. A factor which is involved in a biological process, whereby the process is a PI 3-kinase pathway regulated process, preferably a process selected from the group comprising glucose metabolism, amino acid and glucose deprivation processes, diabetes, wound healing, stress response, apoptosis, metastasis, tumorigenesis, cell migration, cell motility in extracellular matrix and cell growth in extracellular matrix, whereby the factor is encoded by a nucleic acid according to any of claims 1 to 4.

9. The factor according to claim 7 or 8, whereby the factor is a marker for the process.

10. The factor according to any of claims 7 to 9, whereby the factor is a marker for transformed cells, preferably for invasive cells.

11. Use of the factor according to any of the preceding claims or a fragment or derivative thereof as a downstream target or downstream marker of the PI 3-kinase pathway, preferably as a downstream drug target of the PI 3-kinase pathway.

12. Use of the factor according to any of the preceding claims or a fragment or derivative thereof for the manufacture of a medicament for the treatment and/or prevention of a disease and/or for the manufacture of a diagnostic agent for the diagnosis of a disease, whereby the disease is selected from the group comprising cancers, metastatic cancers, diabetes, wound healing and any pathological conditions involving the PI 3-kinase pathway.

13. Use of the nucleic acid according to any of the preceding claims or a fragment or a derivative thereof for the treatment and/or prevention of a disease and/or for the manufacture of a diagnostic agent for the diagnosis of a disease, whereby the disease is selected from the group comprising cancers, metastatic cancers, diabetes, wound healing and any pathological conditions involving the PI 3-kinase pathway.

14. The use according to one of the claims 11 to 13, whereby the disease is characterized in that the cells being involved in said disease lack PTEN activity, or show a hyperactivation of the PI 3-kinase pathway, or show an increased aggressive behaviour, or are tumor cell, preferably cells of a late stage tumor.

15. The use according to any of claims 11 to 14, wherein the disease is a late stage tumor.

16. The use according to any of claims 11 to 15, wherein the disease is a disease related to the branch of the PI 3-kinase pathway which is related to glucose metabolism, preferably the disease is diabetes.

17. A method for the screening of an agent for the treatment and/or prevention of a disease and/or for the manufacture of a diagnostic agent for the diagnosis of a disease, whereby the disease is selected from the group comprising cancers, metastatic cancers, diabetes, wound healing and any pathological conditions involving the PI 3-kinase pathway comprising the steps:

a) providing a candidate compound,

b) providing an expression system for the factor according to any of the preceding claims and/or a system, preferably an activity system, detecting the activity of the factor according to any of the preceding claims;

c) contacting of the candidate compound with the expression system for the factor according to any of the preceding claims and/or the system, preferably an activity system, detecting activity of the factor according to any of the preceding claims;

d) determining if the expression and/or the activity of the factor according to any of the preceding claims is changed under the influence of the candidate compound.

18. Method according to claim 17, characterised in that the candidate compound is contained in a library of compounds.

19. The method according to claim 17 or 18, characterised in that the candidate compound is selected from the group of classes of compounds comprising peptides, proteins, antibodies, anticalines, functional nucleic acids, natural compounds and small molecules.

20. The method according to claim 19, characterised in that the functional nucleic acids are selected from the group which comprises aptameres, aptazymes, ribozymes, spiegelmers, antisense oligonucleotides and siRNA.

21. Use of the factor according to any of the preceding claims or a part or derivative thereof and/or nucleic acid according to any of the preceeding claims or a part or derivative thereof as target molecule for the development and/or manufacture of a medicament for the treatment and/or prevention of a disease and/or for the manufacture of a diagnostic agent for the diagnosis of a disease, whereby the disease is selected from the group comprising cancers, metastatic cancers, diabetes, wound healing and any pathological conditions involving the PI 3-kinase pathway.

22. The use according to claim 21, characterised in that the medicament and/or the diagnostic agent comprises an agent, which is selected from the group comprising antibodies, peptides, anticalines, small molecules, antisense molecules, aptameres, spiegelmers and RNAi molecules.

23. The use according to claim 22, characterised in that the agent interacts with the factor according to any of the preceding claims or a part or derivative thereof.

24. The use according to claim 22, characterised in that the agent interacts with the nucleic acid according to any of the preceding claims or a part or derivative thereof, in particular with mRNA, genomic nucleic acid or cDNA for the factor according to any of the preceding claims.

25. Use of a polypeptide which interacts with the factor according to any of the preceding claims or a part or derivative thereof, for the development or manufacture of a medicament for the treatment and/or prevention of a disease and/or for the manufacture of a diagnostic agent for the diagnosis of a disease, whereby the disease is selected from the group comprising cancers, metastatic cancers, diabetes, wound healing and any pathological conditions involving the PI 3-kinase pathway.

26. The use according to claim 25, characterised in that the polypeptide is selected from the group, which comprises antibodies against the factor according to any of the preceding claims or a part or derivative thereof, and polypeptides binding the factor according to any of the preceding claims or a part or derivative thereof.

27. Use of a nucleic acid which interacts with the factor according to any of the preceding claims or a part or derivative thereof, for the development or manufacture of a medicament for the treatment and/or prevention of a disease and/or for the manufacture of a diagnostic agent for the diagnosis of a disease, whereby the disease is selected from the group comprising cancers, metastatic cancers, diabetes, wound healing and any pathological conditions involving the PI 3-kinase pathway.

28. The use according to claim 27, characterised in that the nucleic acid is selected from the group which comprises aptamers and spiegelmers.

29. Use of a nucleic acid which interacts with a nucleic acid coding for the factor according to any of the preceding claims or a part or derivative thereof, for the development or manufacture of a medicament for the treatment and/or prevention of a disease and/or for

the manufacture of a diagnostic agent for the diagnosis of a disease, whereby the disease is selected from the group comprising cancers, metastatic cancers, diabetes, wound healing and any pathological conditions involving the PI 3-kinase pathway.

30. The use according to claim 29, characterised in that the interacting nucleic acid is an antisense oligonucleotide, a ribozyme and/or siRNA.

31. The use according to claim 29 or 30, characterised in that the nucleic acid coding for the factor according to any of the preceding claims or a part or derivative thereof is the cDNA, mRNA or hnRNA.

32. Pharmaceutical composition comprising at least one agent selected from the group comprising the factor according to any of the preceding claims or a part or derivative thereof, small molecules interacting with the factor according to any of the preceding claims or a part or derivative thereof or with a nucleic acid coding for the factor according to any of the preceding claims or a part or derivative thereof, antibodies specific for the factor according to any of the preceding claims or a part or derivative thereof, polypeptides interacting with the factor according to any of the preceding claims or a part or derivative thereof, a nucleic acid according to any of claims 1 to 4, a nucleic acid coding for the factor according to any of the preceding claims or a part or derivative thereof, nucleic acids interacting with the factor according to any of the preceding claims or a part or derivative thereof and nucleic acids interacting with a nucleic acid coding for the factor according to any of the preceding claims or a part or derivative thereof, and at least one pharmaceutically acceptable carrier, preferably for the prevention and/or the treatment of a disease whereby the disease is selected from the group comprising cancers, metastatic cancers, diabetes, wound healing and any pathological conditions involving the PI-3 kinase pathway.

33. Kit for the characterisation of a disease or a condition which is selected from the group comprising cancers, metastatic cancers, diabetes, wound healing and any pathological conditions involving the PI-3 kinase pathway, comprising at least one agent which is selected from the group comprising the factor according to any of the preceding claims or a part or derivative thereof, antibodies specific for the factor according to any of the preceding claims or a part or derivative thereof, polypeptides interacting with the factor

according to any of the preceding claims or a part or derivative thereof, polypeptides interacting with the nucleic acid according to any of claims 1 to 4 and/or with a nucleic acid coding for the factor according to any of the preceding claims or a part or derivative thereof, nucleic acids interacting with the factor according to any of the preceding claims or a part or derivative thereof, and nucleic acids interacting with the nucleic acid according to any of claims 1 to 4 and/or with a nucleic acid coding for the factor according to any of the preceding claims or a part or derivative thereof, and optionally at least one other compound.